UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 15 2013

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Mr. Scott Larson
Field Supervisor
U.S. Fish and Wildlife Service
South Dakota Ecological Services Field Office
420 S. Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408

Ms. Nancy Golden
Division of Environmental Quality
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive, Suite 820
Arlington, VA 22203

Mr. Keith Paul
Endangered Species Program
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive, Room 452C
Arlington, VA 22203

RE: Memorandum to Address Reporting Requirements Stated in the Rozol and Kaput-D Biological Opinions

Dear Mr. Larson, Ms. Golden, and Mr. Paul,

In accordance with the Biological Opinions (BiOps) received for Rozol and Kaput-D Prairie Dog Bait for the control of black-tailed prairie dogs (BTPDs), the U.S. Environmental Protection Agency's (EPA) Office of Pesticide Programs is providing this memorandum to satisfy the annual reporting requirements. Sections 1 through 4 of this memorandum address the following respective topics:

1. number, species, and associated incident information of any non-target species reported to the National Pesticide Information Center (NPIC);
2. number and circumstances surrounding any federally listed species killed or injured as a result of Rozol or Kaput-D poisoning;
3. number and locations of applicator training sessions, including the number of attendees at each training; and
4. progress in implementing the Conservation Measures, Reasonable and Prudent Measures (RPMs), and Terms and Conditions contained in the BiOps.

Incident Information:
Section 1 and Attachment 1 below provide the number, species, and incident information of any non-target species reported to NPIC as a result of Rozol or Kaput-D poisoning. Section 2 and Attachment 2 below provide the number and circumstances surrounding any federally listed species killed or injured as a result of potential chlorophacinone or diphacinone exposure as reported in the EPA's Ecological Incident Information System (EIIS). All incidents provided were reported to the EPA in 2012.

1. Incident from NPIC: One incident (I023793-001), also captured in the EIIS database, was reported by NPIC. This incident is reported separately from Section 1.2 below because the BiOp specified that incidents from NPIC be reported separately. This reported incident is the only one that can be traced to a specific product. In December 2006, an adult bald eagle with a chlorophacinone concentration of 0.30 µg/g was found in Red Willow, Nebraska. Based on further investigation, this incident was tied to the use of Rozol. The incident was reported to NPIC and received by the EPA in March 2012. The certainty index is classified as highly probable. See Attachment 1 for more information.

2. Incidents from the EPA's EIIS Database: The EIIS Database search was conducted on April 22, 2013 for incidents reported to the EPA in 2012. There was only one incident reported for a federally listed species, in this case, the San Joaquin kit fox. It was determined that strychnine was the cause of death; however, trace amounts of diphacinone were found in the liver tissue. No specific concentration was reported. Given that Kaput-D was not registered at the time of the incident, it is unlikely that the detected trace amount of diphacinone was due to Kaput-D. No other diphacinone products were specified in the incident report. See Attachment 2 for more information.

3. Application Training Sessions:
Section 3.1 and Attachment 3 below provide the number and locations of applicator training sessions, including the number of attendees at each training session for Liphatech. Information for Scimentrics is provided in Section 3.2.

3.1 Liphatech (Rozol): Liphatech provided 17 training sessions reaching a total of 282 attendees. A spreadsheet with the locations, dates, and number of attendees at each training session is provided in Attachment 3.

3.2 Scimetrics (Kaput-D): Given that Kaput-D wasn't registered until October 25, 2012, Scimetrics does not have a finalized stewardship training program. However they sent the EPA a draft of their stewardship training program on January 22, 2013. The EPA has reviewed and commented on this draft stewardship training program and is waiting for a revised draft. Once the EPA has seen the final version, it will be shared with the FWS. The final Stewardship Program is expected to be available prior to the start of the next use season.

4. Implementation of the Conservation Measures, RPMs, and Terms and Conditions:
The EPA has made significant progress implementing the Conservation Measures, RPMs, and Terms and Conditions for Rozol and Kaput-D.

4.1 Use Restrictions: Use restrictions for nine species (black-footed ferret, Chiricahua leopard frog, grizzly bear, jaguar, New Mexico ridge-nosed rattlesnake, Mexican gray wolf, Mexican spotted owl, Preble's meadow jumping mouse, and the northern aplomado falcon) were discussed and agreed to by the FWS, the EPA, and the registrants for Rozol and Kaput-D. The restrictions for two of these species (grizzly bear and Preble's meadow jumping mouse) resulted in an abbreviated use season. Protection measures for the northern aplomado falcon are detailed in the species-specific section below (Section 3.7). Use is prohibited in specific areas for the remaining species.

Status of Implementation: The species-specific use restrictions were adopted via Bulletins Live! (www.epa.gov/espp/bulletins.htm). The EPA published 46 Bulletins for Rozol Prairie Dog Bait in April 2012 and they became enforceable on October 1, 2012. Identical Bulletins for Kaput-D were published and became enforceable the day that Kaput-D was registered (October 25, 2012). These use restrictions can also be found in the EPA's Certified Applicator Training and the registrants' Stewardship Programs.

4.2 Web Content: The EPA, in coordination with the FWS and the registrants, will develop website content intended to achieve the following:

a. Provide information on the importance of limiting the availability of dead and dying target and non-target wildlife in order to protect the listed species of concern;
b. Describe the improved carcass search methods;
c. Include the website link as part of the product label once it is developed.

Additional web content requirements for the northern aplomado falcon are detailed in the species-specific section below (Section 3.7).

Status of Implementation: The web content has been drafted and is currently being reviewed within the EPA. Once the EPA has approved this language, it will be shared with the FWS prior to posting on the EPA's web page.

4.3 Training Programs:

4.3.1 The EPA's Certified Applicator Training:
The EPA shall ensure that proper information regarding listed species and secondary poisoning risk is provided to Rozol and Kaput-D users.

The EPA will work with the State Lead Agencies (SLAs) to incorporate training sessions on secondary poisoning at their annual pesticide applicator recertification programs. The EPA shall submit to the FWS, for review and approval prior to their use, materials to be used for the EPA's additional training. At a minimum, the training materials shall include:

- meaning of secondary toxicity;
- hazards of the prairie dog bait products;
- basis for the carcass search requirements;
- other associated label restrictions;

- importance of minimizing risk to non-target species;
- a description of the listed species and their habitats;
- general provisions of the Endangered Species Act (ESA);
- necessity for adhering to the provisions of the ESA;
- penalties associated with violating the provisions of the ESA;
- specific measures that are being implemented to use Rozol and Kaput-D in a manner compatible with the conservation of listed species; and
- boundaries in which Rozol and Kaput-D can be lawfully applied.

The EPA shall provide the Service with the opportunity to review, attend and participate in any education, outreach, and training sessions conducted as part of efforts relative to the annual pesticide applicator recertification program.

Status of Implementation: The FWS received a draft of the Certified Applicator Training on January 15, 2013, and gave the EPA comments and suggestions. The EPA is still working with the FWS and the SLAs on finalizing their Certified Applicator Training which will soon be available for final FWS review and approval.

No problems were encountered in implementing this RPM. In the coming year, the EPA expects that their training program for the annual pesticide applicator recertification programs will be completed and provided to the Service for final review and approval. Once approved, the EPA will begin to coordinate with the SLAs to schedule training sessions.

4.3.2 Registrant Stewardship Programs:

The purpose of the registrants' Stewardship Programs is to minimize take to the affected listed species of concern via reduction in the incidence of secondary poisoning. The registrants will maintain a stewardship program using the framework described below. The registrants will:

- include a link to the EPA's Bulletins Live! on their product websites, and when developed, a link to the EPA's web page
- develop and distribute a brochure with information from the EPA's web page to be distributed as part of its training sessions and other outreach initiatives
- provide yearly training sessions to pesticide applicators in each of the 10 States where the products are registered. The training sessions will include information on:
    - proper dosing,
    - presentation of the carcass search and line transect survey methods listed on the product labels,
    - education on the meaning of secondary toxicity
    - importance of minimizing secondary exposure to non-target species

Liphatech and Scimetrics shall provide the FWS with the opportunity to review, attend and participate in any education, outreach, and training sessions conducted as part of Liphatech's Rozol and Scimetrics' Kaput-D Prairie Dog Bait Product Stewardship Programs.

Status of Implementation: Liphatech provided their Rozol Prairie Dog Bait Product Stewardship Program to the EPA and the FWS for review. The EPA was notified via an email from Ms. Nancy Golden to Mr. John Hebert dated November 9, 2012, that the FWS staff attended

Liphatech's Rozol Prairie Dog Bait Product Stewardship Program sessions held in the Dakotas. Their Stewardship Program was approved by the FWS as noted in an email from Ms. Nancy Golden to Mr. John Hebert dated January 14, 2013.

Scimetrics is still working on their Kaput-D Prairie Dog Bait Product Stewardship Program. They provided the EPA with a draft of the Stewardship Program on January 22, 2013. The EPA provided comments on May 8, 2013. Once finalized, the Kaput Stewardship Program will be provided to the FWS for review and approval.

No problems were encountered in implementing this RPM. In the coming year, Scimetrics' Kaput-D Prairie Dog Bait Product Stewardship Program will be completed and provided to the FWS for review and approval. Once approved, Scimetrics will begin to schedule their training sessions.

4.4 Carcass Search and Removal Protocol: The EPA shall ensure that the best available information is applied to the Rozol and Kaput-D labels. The BiOps for both Rozol and Kaput-D include specific, agreed upon label language requiring carcass searches. If information becomes available on more effective methods for search and removal protocols than the line-transect protocol specified on the label, the EPA shall incorporate this information on the product labels after coordinating with the FWS.

Status of Implementation: The agreed upon carcass search methods have been placed on both the Rozol and Kaput-D labels. The EPA is not aware of any available information on more effective methods for search and removal protocols than the line-transect protocol specified on the label. Agreement between the two registrants and the FWS on the carcass search protocol was reached in March 2013. Once developed, EPA's web page will include the protocol, and it will also be made available during the training sessions.

4.5 Product Sales Data: The EPA, in cooperation with Liphatech and Scimetrics, shall develop and maintain a system to track Rozol and Kaput-D used for BTPD control and report to the FWS the amounts distributed in each of the 10 states.

The registrants and the EPA will provide information to the FWS regarding the amount of Rozol and Kaput-D produced for BTPD control and the gross distribution per state for a period of 5 years. When the registrants and the EPA provide such information to the FWS, it will be marked, if appropriate, as Confidential Business Information (CBI) or Commercial Information. After 5 years, the registrants, the EPA, and the FWS will determine the need for continued reporting. The decision of whether to continue this reporting will be based upon the confidence that the available information provides the FWS with an acceptable understanding of Rozol and Kaput-D sales for future projection over the course of the BiOp for the registration of the products. The factors that may be considered shall include, but are not limited to:

- Measures of the statistical confidence in the sales trend derived from the 5 years of reported data, and
- The nature of the trend function fitted to the available sales data.

- For example, if the data suggest that the sales trend has reached some asymptote, the continuation of additional reporting may be unnecessary as the market has matured. Other factors may be considered in this event. If the sales trend shows a logarithmic increase in sales, there may be a need to continue reporting to determine if this trend estimate is accurate. If the trendline shows a stable linear growth, the registrant may elect to terminate or continue reporting with the understanding that the trendline information up to that point would serve as the predictor of sales and treated acres for the remainder of the registration decision.

Status of Implementation: Liphatech and Scimetrics have provided their sales information, marked as Confidential Business Information (CBI). This information will be provided by Mr. John Hebert to Ms. Nancy Golden and Mr. Keith Paul when this information becomes available.

4.6 Black-footed Ferret Protection Measures: If an applicator or the EPA becomes aware that a black-footed ferret is known to occupy a BTPD colony outside of a reintroduction area, neither product can be used on that colony until the individual(s) have been relocated. In the event live/dead black-footed ferrets are found outside reintroduction sites, before, during, or after Rozol or Kaput-D application, the Black-footed Ferret Coordinator must be contacted immediately at (970) 897-2730, extension 224. Sufficient time must be allowed to capture and relocate black-footed ferrets before Rozol or Kaput-D application.

The EPA will ensure that if a previously unknown wild black-footed ferret population is discovered, neither product will be used on that population. The EPA shall modify the Bulletins Live! website to include the location of wild extant black-footed ferret populations if discovered in the future. The FWS is aware that an 8-month timeframe exists for incorporating any new information into Bulletins Live!

Status of Implementation: The Black-footed Ferret Coordinator's phone number is on both of the product labels and is included in the EPA's Certified Applicator Training and the registrants' Stewardship Programs.

The EPA was made aware of black-footed ferrets on Standing Rock Sioux reservation in the Dakotas on December 14, 2012 via email from Ms. Jaslyn Dobrahner (EPA Region 8). The email stated that the tribe is working with the FWS to begin mapping the areas and that the tribe has since stopped all prairie dog poisoning. Ms. Dobrahner left a message for the FWS black-footed ferret coordinator. As soon as the EPA receives shapefiles for this new black-footed ferret location, we will begin to prepare Bulletins.

4.7 Northern Aplomado Falcon Protection Measures: Within the range of the northern aplomado falcon, the EPA shall maintain its Bulletins Live! website so that a current listing of counties with habitat for northern aplomado falcons is available to the public for educational purposes.

By November 26, 2012, within the range of the northern aplomado falcon, the EPA shall include the following language in Bulletins Live! for counties with falcon habitat to increase landowner awareness in these areas:

Prairie dog colonies in this county may be occupied by the federally endangered northern aplomado falcon. Rozol or Kaput-D application may be harmful to the northern aplomado falcon. Please contact the U.S. Fish and Wildlife Service in New Mexico at (505) 346-2525, and in Texas at (817) 277-1100 to find out where northern aplomado falcons occur in the county before application.

Within the range of the northern aplomado falcon, the EPA shall inform public users about the risks of Rozol and Kaput-D to non-target organisms and how risks can be minimized.

The EPA will include web content about the risks of Rozol and Kaput-D to non-target organisms, such as the aplomado falcon and its prey, and how risks can be minimized. This information will be developed in coordination with the FWS, and will be in a format that can be printed as a hand-out for distribution to landowners with suitable habitat for the northern aplomado falcon.This information will also be electronically provided to states that include the northern aplomado falcon range for their use and dissemination during certified applicator training.

Status of Implementation: The phone numbers for the FWS in New Mexico and Texas are included on both the Rozol and Kaput-D labels and are included in the EPA's Certified Applicator Training and the registrants' Stewardship Programs.

On June 6, 2012, an email from the EPA to the FWS communicated that Bulletins Live! is designed such that the user must enter a month in which the pesticide is to be applied and therefore, the Bulletins are effective for a given month starting on the first of that month. For this reason, the EPA could not make the Bulletins for Rozol for the northern aplomado falcon effective on November 26, 2012, but instead requested that the FWS allow the EPA to make the Bulletins effective on December 1, 2012, a difference of only five days. The FWS responded in an email dated that same day that shifting the effective date was acceptable. The EPA published 31 Bulletins in August 2012 and they became enforceable on December 1, 2012. Identical Bulletins for Kaput-D for the northern aplomado falcon were published and became enforceable the day that Kaput-D was registered (October 25, 2012).

The FWS developed a factsheet entitled, "Anticoagulants: Rodenticide Use on Black-tailed Prairie Dogs and Unintended Consequences to Non-target Wildlife." The EPA reviewed this document and provided comments to the FWS. The FWS incorporated the EPA's comments and the final factsheet was provided to the EPA on March 13, 2013. Once the EPA develops its web page on anticoagulants, this factsheet will be included there. This information can also be made available during the training sessions.

In conclusion, the EPA has not encountered any problems implementing the Conservation Measures, RPMs and Terms and Conditions thus far. At this time, the EPA has no recommendations for modifying the stipulations to enhance the conservation of the species. The EPA has received two avian reproduction studies on chlorophacinone (MRIDs 48994001 and 48994002), which are currently being reviewed. Other than the recently submitted avian reproduction studies, the EPA does not have any additional new information, study results, or

other relevant information regarding the proposed action and its likely effects to listed species. In the coming year, the EPA expects to continue to work on its web page and training program. Within this time, the EPA expects to submit our training program as well as Scimetrics' Kaput-D Prairie Dog Bait Product Stewardship Program to the FWS for review and approval. Once the FWS has reviewed and approved the EPA's training program and Scimetrics' Kaput-D Prairie Dog Bait Product Stewardship Program, the EPA and Scimetrics will begin to schedule training sessions.

Please feel free to call if you have any questions. I can be reached at (703) 305-0392.

Sincerely,

Anita Pease
Associate Division Director
Environmental Fate and Effects Division (7507P)

cc: Steven Bradbury, USEPA, HQ
Donald Brady, USEPA, HQ
Lois Rossi, USEPA, HQ
Brian Anderson, USEPA, HQ
Meredith Laws, USEPA, HQ
John Hebert, USEPA, HQ

Attachment 1:
Incident Reported to NPIC

Ecological Pesticide Incident Report

Prepared For: Robert Miller

Prepared By: Dave Stone

Ecological Incident Report

Data range: Eagle incident

Prepared: Fri Mar 02 09:54:40 PST 2012

NATIONAL PESTICIDE INFORMATION CENTER

Oregon State UNIVERSITY

Terms of use:

The person/party for whom this report was requested/prepared, as identified in this report, agrees to the following information:

1) NPIC does not guarantee the accuracy or veracity of these reports;
2) NPIC does not assume any responsibility for any misuse of this information;
3) NPIC does not assume that reporting parties will be responsive to follow-up contact regarding reported information;

NPIC does not review the reports for:

1) legitimate reporting personnel
2) toxicological or medical information reported, or
3) circumstances surrounding the exposure

The use of this report in part or entirety by the person/party for whom the report was requested/prepared signifies acceptance by that person/party of the above conditions.

Incident Details

Ecological Incident Report
Eagle incident

Incident: NPICEREP3011334

Submitted: March 01, 2012, 14:15 PM

Incident Type: terrestrial
State: NE
County: Red Willow
Total entities: 1
Magnitude: dead
Start Date: December 06, 2006 End Date: December 06, 2006
Lab Report? Yes - original:"USFWS 2007a Bald Eagle Rozol LE reports.pdf" Stored as: NPICEREP3011334.pdf

Reported By: Matt Schwarz
Title: Contaminants Specialist
Company: US Fish and Wildlife Service
Pierre, SD

Abstract: On 12/06/06, Nebraska Conservation Officer (NCO) Virgil Gosch recovered the carcass of a bald eagle. NCO Gosch suspected the cause of death may have been poisoning. The eagle was transferred to the National Forensics Lab on 01/10/07, who determined the cause of death to be poisoning by Rozol.

Product Information:

Name: Rozol
Reg. Num. 7173-286
Use Site: prairie dog
Formulation: Granular
Use/Misuse: registered
Certainty: definite
Evidence: Law enforcement investigation determined that Rozol was properly applied, by a licensed applicator following the label application guidelines. It appears the death of the eagle resulted because of the authorization of the use ofRozol as an approved poison for prairie dogs.
Air/Ground: ground
Method: hand
Appl. Rate: 53 grams per active burrow
Ingredient: chlorophacinone
AI %: 5.0E-4

Incident Details

Entity Information:

Type: bird
Species: Bald Eagle
Response: Mortality
Habitat: field
Age: adult
Route: Secondary poisoning
Quantity: 1.0
Magnitude: 1
Details: Below is an excrept from the National Fish and Wildlife Forensics Laboratory:

Based on the gross pathological (necropsy) findings and Examiner Kinns results (See attached Chemistry
Examination Report, dated March 19, 2007.), it is my opinion, this eagle died from the ingestion of the
rodenticide Chlorophacinone (0.30 f.Lg/g). Either ingestion of the unprotected bait (primary poisoning) or
the chronic (over a period of time) ingestion of rodents that have succumbed due to their eating the
substance (secondary poisoning), interferes with vitamin K reduction and activation of blood clotting
factors which resulted in hemorrhaging. The massive or sustained hemorrhaging can then lead to anemia,
shock, and subsequent death.
The observed small hemorrhagic skin laceration on the dorsal elbow region of the right wing was caused
by trauma from an undetermined source. This trauma may have initiated the extensive hemorrhaging
caused by the presence of the anticoagulant rodenticide in this eagle.

Incident Details

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Office of Law Enforcement
Clark R. Bavin
National Fish and Wildlife Forensics Laboratory
1490 East Main Street
Ashland, Oregon 97520

IN REPLY REFER TO:

FWS/LE LAB CASE #07-000015

March 22, 2007

Mike Damico, SA/LE
USFWS/LE, North Platte
PO Box 1086
North Platte, NE 69103

Dear Agent Damico:

Enclosed are the examination reports regarding the evidence submitted to the Laboratory under Agency Case No. 2007600155.

Radiographs and photographic enlargements are available upon request for courtroom proceedings. The evidence is being returned to you under separate cover.

Please be aware that because of the presence of the anticoagulant rodenticide *Chlorophacinone*, proper disposal of this eagle carcass requires either its burning or burial. The eagle carcass is **unsuitable for transfer to the National Eagle Repository** upon completion of your investigation.

If I can be of further assistance, please give me a call at 541-482-4191.

Sincerely,

Rhoda M. Ralston DVM

Rhoda M. Ralston, DVM
Veterinary Medical Examiner
E-mail Address: *rhoda_ralston@fws.gov*

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Office of Law Enforcement
Clark R. Bavin
National Fish and Wildlife Forensics Laboratory
1490 East Main Street
Ashland, Oregon 97520

IN REPLY REFER TO:

March 22, 2007

VETERINARY MEDICAL EXAMINATION REPORT

Agency:
USFWS/LE, North Platte
PO Box 1086
North Platte, NE 69103

Lab Case #: 07-000015
Examiner: Ralston
Agency Case #: 2007600155
Investigator: Damico
Suspects:

Case Title: Red Willow County Bald Eagle

EVIDENCE RECEIVED:

The following evidence was received in the Evidence Unit of the Laboratory on January 11, 2007, and was transferred to the undersigned examiner on January 16, 2006:

LAB-1: "One adult bald eagle - ST#650204" [ST#650204; Item#1]

EXAMINATION/S CONDUCTED:

The evidence item was x-rayed, dissected, and examined visually (necropsy examination) for gross pathological lesions. Photographs were taken to document any significant gross pathological findings.

Liver tissue (LAB-1A) from the eagle carcass was transferred to the USGS, National Wildlife Health Center, Madison, Wisconsin, for the detection of liver lead levels (See attached National Wildlife Health Center Diagnostics Services Case Report, dated February 14, 2007.)

Liver tissue (LAB-1B) from the eagle carcass was transferred to Mark A. Kirms, Senior Forensic Scientist - Chemistry, for analyses to determine the presence of any anticoagulant rodenticides (See attached Chemistry Examination Report, dated March 19, 2007.)

NECROPSY EXAMINATION RESULTS: **Lab Case #: 07-000015** **Lab-1**

Species:	Bald Eagle	**Sex/Age:**	Female/Adult
Weight:	4900 gm	**Identification #:**	ST #650204; Item#1
Body Condition:	Excellent	**Specimen:**	Intact Carcass
Post Mortem Condition:	Good	**Date Examined:**	January 24, 2007

HISTORY:

No history provided.

RML
Examiner's Initials

EXTERNAL EXAMINATION:

The feathers on the right side of the face are bile-stained. There is bloody mucous in the mouth. The oral mucous membranes are pale. A small skin laceration (2.0 cm in diameter) is observed on the dorsal (top) aspect of the elbow region of the right wing. The surrounding feathers are bloody. Bloody feathers are also present on the ventral (underneath) right elbow. The keel is not prominent. There are no palpable fractures or electrothermal injuries evident. The feathers surrounding the vent are not fecal-stained. The feet are semi-clenched.

INTERNAL EXAMINATION:

The carcass was partially skinned and the breast removed to facilitate an internal examination. Extensive subcutaneous tissue swelling and hemorrhage extends from the shoulder to below the elbow of the right wing. Hemorrhage is noted in the muscle tissues and into the clavicular air sac. The blood is not well clotted. No penetrating gunshot wounds are evident. There are abundant subcutaneous and mesenteric fat deposits. The breast musculature is normally developed. The skull is intact. The brain is pale, but otherwise normal.

All tissues are generally pale (anemic). The trachea and body cavity air sacs are normal. There is hemorrhage present in the dorsal periphery of both lungs, especially the right. The pericardial sac surrounding the heart is distended with serosanguinous fluid (hydropericardium). Ecchymotic hemorrhages are present on the epicardial surfaces of the heart. The heart is intact, but empty of clotted blood. The liver and kidneys are pale, but otherwise normal. The kidneys are urate-filled. The gall bladder is distended with semi-viscous bile. The spleen is pale and shrunken (2.0 cm X 1.4 cm). The pancreas is normal. The crop and stomach contain only bile-stained mucous. The intestinal tract is empty and atrophied.

RADIOGRAPHIC EXAMINATION:

No fractures or metallic radiodensities suggestive of bullet fragments or pellets are observed.

SUBSAMPLES SAVED/SUBMITTED FOR ANALYSIS:

LAB-1A:	Liver tissue for lead analysis from LAB-1
LAB-1B:	Liver tissue for anticoagulant analysis from LAB-1

NECROPSY FINDINGS:

1) Small hemorrhagic skin laceration on dorsal elbow region of the right wing
2) Extensive tissue hemorrhage of right wing from the shoulder to below the elbow
3) Pericardial sac surrounding the heart distended with serosanguinous liquid (hydropericardium)
4) Generalized pale (anemic) tissues

DIAGNOSIS:

Poisoning - Anticoagulant Rodenticide *Chlorophacinone*
Trauma

RMR
Examiner's Initials

COMMENT:

Based on the gross pathological (necropsy) findings and Examiner Kirms results (See attached Chemistry Examination Report, dated March 19, 2007.), it is my opinion, this eagle died from the ingestion of the rodenticide *Chlorophacinone* (0.30 µg/g). Either ingestion of the unprotected bait (primary poisoning) or the chronic (over a period of time) ingestion of rodents that have succumbed due to their eating the substance (secondary poisoning), interferes with vitamin K reduction and activation of blood clotting factors which results in hemorrhaging. The massive or sustained hemorrhaging can then lead to anemia, shock, and subsequent death.

The observed small hemorrhagic skin laceration on the dorsal elbow region of the right wing was caused by trauma from an undetermined source. This trauma may have initiated the extensive hemorrhaging caused by the presence of the anticoagulant rodenticide in this eagle.

DISPOSITION OF EVIDENCE:

All evidence item(s) were transferred to the Evidence Unit pending return to the submitting agency.

Rhoda M. Ralston, DVM
Veterinary Medical Examiner

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Office of Law Enforcement
Clark R. Bavin
National Fish and Wildlife Forensics Laboratory
1490 East Main Street
Ashland, Oregon 97520

IN REPLY REFER TO.

March 19, 2007

CHEMISTRY EXAMINATION REPORT

Agency:
USFWS/LE, North Platte
PO Box 1086
North Platte, NE 69103

Lab Case #: 07-000015
Examiner: Kirms
Agency Case #: 2007600155
Investigator: Damico
Suspects:
Case Title: Red Willow County Bald Eagle

EVIDENCE RECEIVED:

The following evidence was transferred to the undersigned examiner on February 08, 2007:

LAB-1B: Liver tissue for anticoagulant analysis from LAB-1

EXAMINATION CONDUCTED:

LAB-1B: The evidence item was analyzed for the presence of anticoagulants employing high performance liquid chromatography/mass spectrometry.

EXAMINATION CONCLUSIONS:

LAB-1B: Results from the analyses conducted revealed the presence of the anticoagulant *Chlorophacinone* in a quantity of 0.30 µg/g.

DISPOSITION OF EVIDENCE:

The evidence item was transferred to the Evidence Unit pending return to the submitting agency.

Mark A. Kirms
Senior Forensic Scientist

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
OFFICE OF LAW ENFORCEMENT

REPORT OF INVESTIGATION
REPORT#: 2007600155R003

Note: This document contains neither recommendations nor conclusions of the Office of Law Enforcement, U.S. Fish and Wildlife Service. It is the property of this office and is loaned to your agency. It, and its contents are not to be distributed outside of your agency.

CASE TITLE	*REPORT DATE*	*CASE NUMBER*
RED WILLOW COUNTY BALD EAGLE	10/19/2007	2007600155
	REPORTING OFFICER Mike Damico - SA0435	*REPORT STATUS* DISPOSITION OF PROPERTY PENDING
	APPROVED BY /s/ Honora G. Gordon	

SUBJECTS OF REPORT

BARRETT D. EILER
DONNIE SUGHROUE, JR.

SYNOPSIS

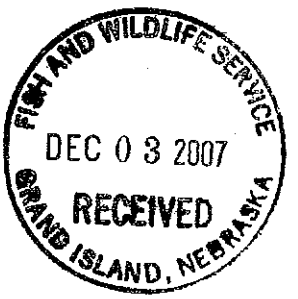
This report updates the investigation of the suspected killing of a Bald Eagle (eagle) in Red Willow County, Nebraska, in violation of the Bald and Golden Eagle Protection Act. On 12/06/06, Nebraska Conservation Officer (NCO) Virgil Gosch recovered the carcass of an eagle. NCO Gosch suspected the cause of death may have been poisoning. The eagle was transferred to the National Forensics Lab on 01/10/07, who determined the cause of death to be poisoning by Rozol.

On 08/07/07, Barrett EILER, manager of the property where the suspected prairie dog poisoning had taken place, was contacted. EILER confirmed the prairie dog town had been poisoned and identified Donnie SUGHROUE as the poison applicator. SUGHROUE was also contacted and confirmed Rozol as the poisoning agent used. SUGHROUE is licensed as an approved applicator and followed label instructions. SUGHROUE also stated it was not unusual for prairie dogs showing the effects of the poisoning to come to the surface of the ground, seemingly unaware of any potential dangers, being in what he described, as a stupor state before their death.

DISTRIBUTION

Internal List
Roger Gephart, SA0422
Honnie Gordon, SA0501
Robert Prieksat, SA0449
Mike Damico, SA0435
Gary Mowad, SA0446

External List
Gosch Virgil , NCO
USFWS Ecological Services



NARRATIVE

DETAILS OF INVESTIGATION

08/07/07 - Contact with Barrett EILER

On 08/07/07, SA Mike Damico contacted Barrett EILER, of McCook, Nebraska. EILER admitted to managing the property where the prairie dog town had been located, as well as the nearby field where the eagle carcass had been recovered. EILER confirmed the prairie dogs had been poisoned and he had paid Donnie SUGHROUE to apply Rozol to kill the prairie dogs. EILER believed SUGHROUE to be a licensed applicator and thought he had paid SUGHROUE about $8.00 per acre to apply the Rozol, plus the cost of the poison itself. EILER also said to the best of his knowledge, none of his neighbors had killed prairie dogs with poison in the last season. EILER provided contact information for SUGHROUE, which also included the Nebraska licensed pesticide applicator number 082464.

08/07/07 - Contact with Donnie SUGHROUE

On 08/07/07, SA Damico contacted Donnie SUGHROUE, at his home in Bartley, Nebraska. SUGHOURE recalled being hired to poison the prairie dog town for EILER and had made the application of Rozol on November 8, 2006. SUGHROUE used 12.5 buckets of Rozol to cover about 38 acres. SUGHROUE charged EILER $10.00 per acre, plus the cost of the Rozol, which he picked up himself. SUGHROUE produced his Nebraska Commercial Pesticide Applicator License, NEB 082464, which permitted him to apply Rozol for the control of prairie dogs.

SUGHROUE explained he applies the Rozol into the prairie dog hole, not onto the surface around the hole. SUGHROUE displayed specialized equipment used for this purpose. SUGHROUE went on to explain a return visit is made within four to five days after initial application and again in another four days after that. SUGHROUE said he had not seen many prairie dogs on the surface at this particular location, when he returned, but at other sites he had. SUGHROUE also explained that he knew poisoned prairie dogs often returned to the surface before dying, as evidenced by the bloody stools he often saw when he returned to inspect the sites. SUGHROUE further relayed an incident when the poison Rozol had been applied to a prairie dog town, as per label instructions and the lady owning the property watched as poisoned prairie dogs stumbled around on the surface for two weeks after the application. SUGHROUE added when he does see prairie dogs on the surface after they have been poisoned, they seem to be in a stupor, and not wary at all. SUGHROUE said he could often walk right up to these poisoned prairie dogs and they would not run away.

DESCRIPTION OF SUBJECTS

Barrett D. EILER
38986 US Highway 6
PO Box 821
McCook, NE 69001
(308) 345-6735

Donnie SUGHROUE, Jr.
Box 283
Bartley, NE 69020
(308) 692-3693

WITNESSES

Virgil Gosch
Nebraska Conservation Officer
Box 752
McCook, NE 69001
(308) 345-2185

Mike Damico
Special Agent
USFWS-LE
Box 1086
North Platte, NE 69101
(308) 534-0925

LAWS VIOLATED

Eagle Act, 16 U.S.C. 668
Migratory Bird Treaty Act, 16 U.S.C. 703

EVIDENCE

One adult Bald Eagle carcass, Seizure Tag #650204 - located at the USFWS North Platte LE office. (This evidence must be buried or incinerated for proper disposal. The Rainwater Basin Waterfowl Management District office has offered to help with the disposal when they next use their incinerator.)

ATTACHMENT

1. Copy of Rozol Label (1 Page)

RESTRICTED USE PESTICIDE
DUE TO POTENTIAL SECONDARY TOXICITY TO NONTARGET ORGANISMS
For retail sale to and use only by certified and licensed private applicators or commercial/non-commercial applicators certified and licensed in Nebraska's wildlife damage control category.

24(c) SUPPLEMENTAL LABEL

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF NEBRASKA

rozol®

PRAIRIE DOG BAIT

FOR USE ON RANGELAND AND NONCROP AREAS
TO CONTROL BLACK-TAILED PRAIRIE DOGS (*Cynomys ludovicianus*)

EPA SLN No. NE-060001
EPA Registration No. 7173-184 EPA Est No. 7173-WI-1
This label is effective beginning February 15, 2006 and expires March 15, 2008

DIRECTIONS FOR USE
It is a violation of Federal Law to use this product in a manner inconsistent with its labeling, which includes this supplemental label and the label for Rozol Pocket Gopher Bait (EPA Reg. No. 7173-184). Both of these labels must be in the possession of the user at the time of application. Follow all directions of this supplemental label and all applicable directions, restrictions and precautions on the label for EPA Reg. No. 7173-184.

The Nebraska Pesticide Act requires sales of restricted use pesticides to be recorded by the dealer within 48 hours of the sale, and provided to a designated agent of the Nebraska Department of Agriculture upon request. Users of this product are advised that monitoring will be conducted by the NDA in order to determine compliance with all label and recordkeeping provisions.

Use restrictions: This product may only be used in underground applications to control black-tailed prairie dogs (*Cynomys ludovicianus*) on rangeland and noncrop areas in Nebraska.

- Bait must be applied at least 6 inches down prairie dog burrows. **Do not apply bait on or above ground level. Treat only active burrows.**
- Apply bait only between October 1 and March 15 of the following year, before spring green-up of vegetation occurs.
- Store this product away from humans, domestic animals, pets and nontarget wildlife. Do not allow children, pets, domestic animals, or persons not involved in the application to be in the area where the product is being applied.
- Wear chemical-resistant gloves when handling bait or dead animals.

Site Assessment: Before applying this product, identify active prairie dog burrows by visual observation. The openings of active burrows will generally be free of leaves, seeds, other debris or spider webs, and will show freshly turned earth, and have prairie dog feces nearby.
Application: Apply 1/4 cup (53 grams or nearly 2 ounces) of bait at least 6 inches down active prairie dog burrows. **Make sure no bait is left on the soil surface at the time of application.** Applicator must retrieve and dispose of any bait that is spilled above ground or placed less than 6 inches down the burrow entrance.
Follow-up: Prairie dogs that have eaten this bait will begin to die off in 4 to 5 days after they eat a lethal amount. Applicator must return to the site within 1 to 2 days after bait application, and on 1 to 2 day intervals, to collect and properly dispose of any bait or dead or dying prairie dogs that may have come to the surface. Carcass collection and burial should occur in late afternoon, near sundown, in order to reduce the potential of scavenging animals finding prairie dog carcasses. Continue to collect and dispose of dead or dying prairie dogs at 1 to 2 day intervals until dead animals are no longer found. Carcasses buried on site must be in holes dug at least 18 inches deep, or in inactive burrows, to avoid scavenging by non-target animals. Burial includes covering and packing the hole or burrow with soil. Any animal killed other than prairie dogs must be reported to the Nebraska Department of Agriculture by calling (877) 800-4080.
Reapplication: If prairie dog activity persists several weeks or months after the bait was applied, a second application prior to March 15 is allowed, by treating burrows in the same manner and procedure as the first application. Follow all baiting, animal disposal and reporting directions as indicated above.

24(c) registrant

LIPHATECH
3600 W. Elm Street
Milwaukee, WI 53209
(414) 351-1476

Att#____ Pg____ of____

ADMINISTRATIVE PAGE

ADMINISTRATIVE INFORMATION

Proper below ground application of Rozol, even with the poison inserted under ground with a special applicator, still results in poisoned prairie dogs dying above ground on the surface. These prairie dogs dying above ground, make for a very attractive food source for raptors and other animals. It is easy to imagine predators of every sort accessing this food source and ultimately dying from it. It appears authorization of Rozol for use as a prairie dog poison is the real problem because of secondary poisoning issues with raptors feeding on the prairie dogs dying above ground.

Due to the fact the Rozol was properly applied, by a licensed applicator following the label application guidelines, it appears the death of the eagle resulted because of the authorization of the use of Rozol as an approved poison for prairie dogs. This information should be passed along to the USFWS Ecological Service Office, to EPA, and the Nebraska Department of Agriculture for their use in arguing the merits of this decision and so they can consider what steps to take to prevent any future incidents. See Attachment #1, copy of Rozol Label.

Attachment 2:
San Joaquin Kit Fox
Diphacinone Incident

I023690
-001

Re: Fw: Lab report for San Joaquin Kit Fox: I023690
Norman Spurling to: Nicholas Mastrota 02/13/2012 10:30 AM
Cc: Robert Miller, Melissa Panger

Thanks. This will be I023690-001.
Norman Spurling
6(a)(2) Coordination and Analysis Team Leader
OPP/ITRMD/ISB
703-305-5835

Nicholas Mastrota Norman, Attached is a new incident report of a S... 02/13/2012 10:01:46 AM

From: Nicholas Mastrota/DC/USEPA/US
To: Norman Spurling/DC/USEPA/US@EPA
Cc: Robert Miller/DC/USEPA/US@EPA
Date: 02/13/2012 10:01 AM
Subject: Fw: Lab report for SJKF

Norman,

Attached is a new incident report of a San Joaquin Kit Fox poisoned by strychnine in Backersfield, California. The incident is very similar to I023044-038, but this must be a distinct incident because the date is about one year later.

Nick
----- Forwarded by Nicholas Mastrota/DC/USEPA/US on 02/13/2012 09:59 AM -----

From: Stella McMillin <smcmillin@dfg.ca.gov>
To: <jmartin@cdpr.ca.gov>, Richard Bireley <rbireley@cdpr.ca.gov>, <agcomm@co.kern.ca.us>, Andrew Halverson <AHalverson@dfg.ca.gov>, Deana Clifford <DCLIFFORD@dfg.ca.gov>, Nicholas Mastrota/DC/USEPA/US@EPA
Date: 02/09/2012 04:45 PM
Subject: Lab report for SJKF

Hello, Please find attached the DFG lab report for the loss of the SJKF in Kern County. I have also attached the original report written by the pathologist at CAHFS. If you need a hardcopy or have any questions about either report, please let me know.

Thank you.
Stella

Stella McMillin
California Department of Fish and Game
Wildlife Investigations Laboratory
1701 Nimbus Road
Rancho Cordova, CA 95670


(916) 358-2954 P2644.pdf P2644cahfs.pdf

DEPARTMENT OF FISH AND GAME
WILDLIFE BRANCH
WILDLIFE INVESTIGATIONS LABORATORY
PESTICIDE INVESTIGATIONS
1701 NIMBUS ROAD
RANCHO CORDOVA, CA 95670
PHONE (916) 358-2954

Lab No: P-2644
WPCL No.

Date Received 1/26/12
Sample: San Joaquin kit fox
Listing status: Federal endangered, State threatened

To: **Warden Andrew Halverson**

Report Date: February 9, 2012

Remarks
San Joaquin kit fox loss in Kern County due to strychnine poisoning.

Background
A San Joaquin kit fox, *Vulpes macrotis mutica*, was found dead under a car at Golden Valley High School in Bakersfield on December 30, 2011. The fox was stiff-legged but no signs of external trauma were evident. The fox was transferred to the Department of Fish and Game.

RESULTS OF EXAMINATION

Necropsy was performed by Dr. Leslie Woods of the California Animal Health and Food Safety Laboratory at UC Davis (Attachment). The fox was found to be in good health with adequate fat. No signs of physical trauma were noted, nor were there signs of internal hemorrhage. Liver and stomach contents were submitted for chemical analysis.

Stomach contents contained strychnine. The stiff-legged condition of the carcass was consistent with strychnine poisoning. Dr. Woods determined that the fox's death was caused by strychnine poisoning.

The anticoagulant rodenticides brodifacoum and diphacinone were detected in liver tissue at trace levels and bromadiolone was detected at 0.05 ppm. These compounds are routinely found in San Joaquin kit foxes in Bakersfield, as a result of secondary exposure (McMillin et al. 2008). As no signs of internal hemorrhage were noted, brodifacoum, bromadiolone, and diphacinone were not thought to have contributed to the death of the fox.

Reference:

McMillin, S.C., R.C. Hosea, and B.J. Finlayson. 2008. Anticoagulant Rodenticide Exposure in an Urban Population of the San Joaquin Kit Fox. Proceedings of the 23rd Vertebrate Pest Conference.

WILDLIFE INVESTIGATIONS LABORATORY

Stella McMillin

Stella McMillin
Principal Investigator

Approved

Steve G. Torres

Steve Torres, Program Manager,
Wildlife Investigations Laboratory

Cc: **Ruben Arroyo**
Agricultural Commissioner, Kern County

Glenn Fankhauser
Deputy Agricultural Commissioner, Kern County

Jeanne Martin,
DPR Enforcement

Rich Bireley,
DPR Registration

Nicholas Mastrota,
USEPA

Dr. Deana Clifford
CDFG

California Animal Health & Food Safety Laboratory System
PO Box 1770
Davis, CA 95617
(530) 752-8700

Final
Version 1
This report supersedes all previous reports for this case

CAHFS Case #: D1201028
Referral #:
Date Collected:
Date Received: 01/30/2012
Case Coordinator: Leslie Woods, DVM, PhD, DACVP
Electronically Signed and Authorized By: Woods, Leslie on 2/8/2012 8:19:11AM

Fax To:
Clifford, Deana
916-358-2814

Specimens Received: 1 Carcass;

Comments: 1 carcass

Case Contacts

Bill To	CALIF DEPT OF FISH AND GAME	916-358-1462	BIO TST VAR/WL P11800031701 Nimbus Road Suite D Rancho Cordova, CA 95670
Owner	CDFG-WILDLIFE PROGRAMS BRANCH		1812 9TH STREET SACRAMENTO, CA 95814
Submitter	Clifford, Deana	916-616-0809	1701 Nimbus Road, Suite D Rancho Cordova, CA 95670

Specimen Details

ID	ID Type	Taxonomy	Gender	Age
	CAHFS Internal ID	Kit Fox		

Laboratory Findings/Diagnosis

1. Strychnine poisoning.
2. Misc.
   a. Tonsil: lymphoid necrosis with intraepithelial pustules.
   b. Exposure to brodifacoum, bromadiolone and diphacinone.

Case Summary

02-08-12. Strychnine was detected in the stomach contents of this fox and is the cause of death. In addition, bromadiolone, brodifacoum and diphacinone were also detected indicating exposure (though no hemorrhage was seen on gross examination).

Clinical History

Found 12/30/2011 on school campus in Kern County. Found stiff-legged, laying in the open - Very similar to the other kit foxes which died from strychnine poisoning the year before.

Gross Observations

This kit fox (N12-014) is previously frozen. Postmortem state upon thawing is good to fair. This fox weighs 2.38 kg and is in good body condition with adequate fat in the subcutaneous tissues, mesentery, perirenal and pericardial. The body length (nose to base of tail) is 53 cm; tail length is 30.5 cm; foot is 12.5 cm; girth is 29 cm; neck circumference is 17 cm. This is a male. The left hing leg easily broke when stressed. The bone marrow is red. The oral cavity and esophagus are unremarkable. The teeth are sharp (young). There is fluid in the lumen of the trachea and bronchi. Lungs are pink and wet. No consolidated regions are apparent. The spleen and pancreas are unremarkable. There is multifocal red dimpling of the cortical surface (subcapsular) of both kidneys. The urine is clear yellow. The urinary bladder is unremarkable. The lymph nodes are not enlarged. The stomach contains mucoid, grey/brown fluid contents with small chunks of presumptive muscle. Intestines are unremarkable. The contents are normal consistency and feces are soft. The colon/rectum does not contain any contents. Liver is unremarkable. The brain is unremarkable.

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Bacteriology

BACTERIAL AEROBIC CULTURE

Animal/Source	Specimen	Specimen Type	Results
D1201028-01	N12-014	Lung Tissue	Mixed flora Rare
D1201028-01	N12-014	Liver Tissue	No growth after 48 hours

Salmonella PCR and Confirmation Culture

Animal/Source	Specimen	Specimen Type	Results
D1201028-01	N12-014	Intestinal Contents	No salmonella detected

Histology

Brain, peripheral nerve, stomach, bone marrow, pancreas, prostate, testicle, kidney, thyroid, tongue, trachea, ear canals, eyelids, parathyroid, lip, paw pad, nose, lungs, adrenal gland, In the lungs, there is patchy filling of alveoli with proteinic edema fluid. There is multifocal thickening of the interstitium with eosinophilic matrix (possible fibrin). In the kidneys, there are multifocal, relatively linear foci through the cortex into the medulla with interstitial fibrosis with entrapped tubules lined by attenuated epithelium and with hyaline casts (infarcts). In the other kidney, the foci are more numerous and not so linear. There is marked lymphoid necrosis of the tonsil. There is exocytosis of inflammatory cells in the epithelium and intramucosal pustules of leukocytes.

ImmunoHistoChemistry

Canine Distemper Virus IHC Stain

Animal/Source	Specimen	Specimen Type	Results
D1201028-01	Block #T09	Tissue Block	Negative

Toxicology

Reporting Limit (Rep. Limit): The lowest routinely quantified concentration of an analyte in a sample. The analyte may be detected, but not quantified, at concentrations below the reporting limit.

The submitted stomach contents contained strychnine. Stychnine is the active ingredient in some pesticides used to control gophers, rats, and coyotes. It acts by competitively and reversibly antagonizing the inhibitory neurotransmitter glycine at postsynaptic neuronal sites in the spinal cord and medulla. The result is unchecked reflex stimulation, with predominance of more powerful extensors which results in rigidity. Clinical signs of poisoning include anxiety, stiffness, violent tetanic seizures, saw-horse stance, opisthotonus, and apnea. Death usually occurs from anoxia and exhaustion. The approximate lethal dose in dogs is 0.75 mg/kg bodyweight. Please note that the gas chromatography/mass spectrometry analysis for strychnine is semi-quantitative. Mass-spectral confirmation of strychnine in the submitted specimen is consistent with exposure to strychnine.

The submitted brain had an acceptable cholinesterase activity for canids (adequate > 1.8 uM/g/min).

The submitted liver had the listed metals in acceptable concentrations for foxes.

The submitted liver contained brodifacoum, bromadiolone and diphacinone. These findings are consistent with exposure to these anticoagulant rodenticides from the environment.

Anticoagulants Screen

Animal/Source	Specimen	Specimen Type
D1201028-01	N12-014	Liver Tissue

Analyte	Result	Units	Rep. Limit	Units
BRODIFACOUM	Trace	ppm	0.01	ppm

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Bromadiolone	0.050	ppm	0.05	ppm	
Chlorophacinone	Not Detected	ppm	0.25	ppm	
Coumachlor	Not Detected	ppm	0.05	ppm	
Difethialone	Not Detected	ppm	0.25	ppm	
Diphacinone	Trace	ppm	0.25	ppm	
Warfarin	Not Detected	ppm	0.05	ppm	

CHOLINESTERASE

Animal/Source	Specimen	Specimen Type	Results	Units	Rep. Limit	Ref. Range
D1201028-01	N12-014	Brain Tissue	4.1	uM/g/min	0.1	

HEAVY METAL SCREEN

Animal/Source	Specimen	Specimen Type
D1201028-01	N12-014	Liver Tissue

Analyte	Result	Units	Rep. Limit	Units	Ref. Range
Lead	Not Detected	PPM	1.000	PPM	
Manganese	3.2	PPM	0.040	PPM	
Iron	150	PPM	0.200	PPM	
Mercury	Not Detected	PPM	1.000	PPM	
Arsenic	Not Detected	PPM	1.000	PPM	
Molybdenum	Not Detected	PPM	0.400	PPM	
Zinc	27	PPM	0.100	PPM	
Copper	9.2	PPM	0.100	PPM	
Cadmium	Not Detected	ppm	0.300	ppm	

STRYCHNINE

Animal/Source	Specimen	Specimen Type	Results	Units	Rep. Limit
D1201028-01	N12-014	Gastric Contents	Positive	ppm	1

Virology

RABIES

Animal/Source	Specimen	Specimen Type	Results
D1201028-01	N12-014	Brain Tissue	Negative

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Attachment 3:
2012 Liphatech Training Sessions Summary

Commercial/financial information may be entitled to confidential treatment

Stewardship Meetings **Date** **# Attendees**

[redacted]